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The over-determined boundary value problem method for the problems of electromagnetic waves diffraction in the waveguides with metallic bounds

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Abstract

The auxiliary over-determined problems for the Maxwell equations set in the semi-infinity cylindrical domains with Cauchy conditions on the face are considered. The integral identities connecting the traces of the solutions on the face are obtained in the case of arbitrary cross-section of the domain. These identities are used to design the regularization method for integral equations of the diffraction problem on the different inhomogeneities in the waveguides with metallic sides. The over-determined boundary value problem for semi-opened semi-infinite waveguide in the two-dimensional case is investigated. © 2006 IEEE.